

What is claimed is:

1. In an optical transmission network system having a plurality of nodes for transit transmission of a wavelength-division-multiplexed optical signal, a
5 transmission route applicability inspection system for inspecting the applicability of a route being set through one or more nodes among the plurality of nodes, the transmission route applicability inspection system comprising:

10 a test signal transmission unit transmitting an optical test signal from one end of a route along the route;

a test signal reception unit receiving, in the other end of the route, the optical test signal transmitted along the route;

15 a parameter extraction unit obtaining a transmission parameter representing a transmission characteristic of the optical test signal received in the test signal reception unit; and

20 a route applicability inspection unit inspecting applicability of the route based on the transmission parameter extracted in the parameter extraction unit.

2. The transmission route applicability inspection system according to claim 1,

25 wherein the test signal transmission unit is provided in first line terminal equipment disposed on one end of the route in the optical transmission network system,

the test signal reception unit and the parameter extraction unit are provided in second line terminal equipment disposed on the other end of the route in the optical transmission network system, and

5 the route applicability inspection unit is provided in a network monitoring system monitoring the optical transmission network system.

10 3. The transmission route applicability inspection system according to claim 1,

wherein the test signal transmission unit is provided in the first line terminal equipment disposed on one end of the route in the optical transmission network system,

15 the test signal reception unit, the parameter extraction unit, and the route applicability inspection unit are respectively provided in the second line terminal equipment disposed on the other end of the route in the optical transmission network system, and

20 the route applicability inspection unit transmits the inspection result to the network monitoring system monitoring the optical transmission network system.

4. The transmission route applicability inspection system according to claim 1, further comprising:

25 a frame transmission unit transmitting a route search frame for searching the route from one end of the route to the other end of said route in the form of an optical

signal;

5 a frame reception unit receiving, on the other end of the route, the route search frame having been routed through one or more nodes among the plurality of nodes based on routing tables respectively provided in the plurality of nodes; and

a route setting unit setting the route based on the nodes through which the route search frame received in the frame reception unit was transmitted.

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5. The transmission route applicability inspection system according to claim 4,

wherein the frame transmission unit is provided in the first line terminal equipment disposed on one end of 15 the route in the optical transmission network system,

the frame reception unit is provided in the second line terminal equipment disposed on the other end of the route in the optical transmission network system, and

the route setting unit is provided in the network 20 monitoring system monitoring the optical transmission network system.

6. The transmission route applicability inspection system according to claim 1, further comprising:

25 a routing table storage unit storing a routing table for deciding a transfer address of the signal received in each plurality of nodes; and

5 a route setting unit searching an object route for inspecting the route applicability from one end to the other end based on the routing table stored in the routing table storage unit, and setting the searched route as the object route for inspecting the route applicability.

7. The transmission route applicability inspection system according to claim 6,

10 wherein the routing table storage unit and the route setting unit are provided in a network monitoring system monitoring the optical transmission network system.

15 8. In an optical transmission network system having first line terminal equipment and second line terminal equipment transmitting and receiving a wavelength-division-multiplexed optical signal, and a plurality of nodes for transit transmission of said optical signal, a transmission route applicability inspection system for inspecting route applicability of a route being set from 20 the first line terminal equipment to the second line terminal equipment through one or more nodes among the plurality of nodes, the transmission route applicability inspection system comprising:

25 a storage unit storing transmission parameters representing transmission characteristics of sections between each neighboring pair among the first line terminal equipment, the second line terminal equipment and the

plurality of nodes; and
5 a route applicability inspection unit reading out the transmission parameters of the sections constituting the route, and inspecting the route applicability based on the readout transmission parameters.

9. The transmission route applicability inspection system according to claim 8,

10 wherein the storage unit is constituted of distributed storage units respectively provided in the first line terminal equipment, the second line terminal equipment, and the plurality of nodes,

15 each distributed storage unit stores a transmission parameter of each section between one of the first line terminal equipment, the second line terminal equipment or the nodes, having said each distributed storage unit, and the neighboring node or the neighboring first or second line terminal equipment, and

20 the route applicability inspection unit is provided in a network monitoring system monitoring the optical transmission network system.

10. The transmission route applicability inspection system according to claim 8,

25 wherein the storage unit and the route applicability inspection unit are provided in a network monitoring system monitoring the optical transmission network system.

11. The transmission route applicability inspection system according to any one of claims 8 to 10,

5 wherein the first line terminal equipment, the second line terminal equipment, and each plurality of nodes respectively comprise:

a test signal transmission unit transmitting a test signal in the form of light to the neighboring node or the neighboring first or second line terminal equipment;

10 a test signal reception unit receiving the test signal in the form of light, transmitted from the neighboring node or the neighboring first or second line terminal equipment; and

15 a parameter extraction unit obtaining the transmission parameter representing the transmission characteristic of the test signal received in the test signal reception unit, and supplying the obtained parameter to the storage unit.

12. The transmission route applicability inspection system according to claim 8, further comprising:

20 a frame transmission unit transmitting a route search frame for searching the route, from one end of the route to the other end of the route in the form of an optical signal;

25 a frame reception unit receiving, on the other end of the route, the route search frame having been routed by one or more nodes among the plurality of nodes based

on each routing table provided in each plurality of nodes; and

5 a route setting unit setting the route based on the nodes through which the route search frame received in the frame reception unit has been routed.

13. The transmission route applicability inspection system according to claim 12,

wherein the frame transmission unit is provided in 10 the first line terminal equipment disposed on one end of the route in the optical transmission network system,

the frame reception unit is provided in the second line terminal equipment disposed on the other end of the route in the optical transmission network system, and

15 the route setting unit is provided in a network monitoring system monitoring the optical transmission network system.

14. The transmission route applicability inspection system according to claim 8, further comprising:

a routing table storage unit storing a routing table for deciding a transfer address of the signal received in each plurality of nodes; and

25 a route setting unit searching a route from one end of the route to the other end based on the routing table stored in the routing table storage unit, and setting the searched route as the object route for inspecting the route

applicability.

15. The transmission route applicability inspection system according to claim 14,

5 wherein the routing table storage unit and the route setting unit are provided in a network monitoring system monitoring the optical transmission network system.

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